

Application No.: 10/635,864  
Response dated: November 2, 2007  
Reply to Office Action June 29, 2007

### REMARKS

Reconsideration of the application is respectfully requested.

Claims 1-12, 14-16, 18, and 20 are currently pending. Claims 1, 7, 9, and 20 have been amended. Claims 13, 17, and 19 were previously cancelled.

Claims 1 and 20 have been amended to recite the limitations previously recited in Claim 9. Claim 1 has further been amended to delete the limitation directed to the nitrogen-containing ligand.

Claim 7 has been amended to further clarify the method by which the recited notch tensile test is conducted. Support for this amendment may be found in numbered paragraph [0139] of the application as filed.

Claim 9 has been amended to further limit the predicted S-4 Tc for 110 mm pipe to less than -40°C when determined according to ISO DIS 13477 / ASTM F1589. Support for this amendment may be found in numbered paragraph [0140] of the application as filed. No new matter has been added.

### Double Patenting

Claims 1-12, 14-16, 18, and 20 stand provisionally rejected over USSN 10/772,823.

Upon indication of allowable subject matter in the present case, a Terminal Disclaimer will be filed.

### Rejection Under 35 U.S.C. §102 and/or 35 U.S.C. § 103

Claims 1-12, 14-16, 18, and 20 have been rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent No. 5,124,418 to Welborn (Welborn.) Applicants respectfully disagree.

Applicants recite a process to produce a bimodal polyethylene comprising ethylene and a C<sub>4</sub> to C<sub>12</sub> olefin (the copolymer.) The copolymer recited by Applicants is produced using a bulky ligand metallocene catalyst and the recited Group 15 containing compound, referred to herein for ease of reference as the "bis-amide catalyst". As is readily known to

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one of skill in the art, the metallocene catalyst is utilized in the recited process to produce the lower molecular weight component of the recited copolymer. The bis-amide catalyst is utilized to produce the high molecular weight component of the recited copolymer. Applicants have unexpectedly found that the bis-amide catalyst is superior to known catalysts at incorporating the comonomer into the higher molecular weight component of the copolymer. The use of the recited bis-amide catalyst thus results in improved short chain branching in the higher molecular weight component of the recited copolymer. As known to one of skill in the art, this improvement in short chain branching in the high molecular weight component of the polymer is demonstrated in the S-4 Tc for 110 mm pipe, as determined by ISO DIS 13477 / ASTM F1589. Applicants have thus amended the presently claimed invention to clarify that the copolymer has an S-4 Tc of less than  $-5^{\circ}\text{C}$  according to the recited method.

In contrast, Welborn is generally directed to producing a copolymer using a metallocene catalyst to produce a low molecular weight component, in combination with a Ziegler-Natta catalyst to produce a high molecular weight component of the copolymer. For numerous reasons known to one of skill in the art, Ziegler-Natta catalyst are well known to be limited in their ability to incorporate comonomer into polyethylene copolymers, especially at higher molecular weights. As a result, the polymer disclosed by Welborn will lack appreciable short-chain branching in the higher molecular weight component of the copolymer. In fact, one of skill in the art would reasonably assume that the higher molecular weight component of Welborn will consist essentially of polyethylene. Accordingly, Welborn discloses a copolymer indicative of the prior art which Applicants have improved upon, which lacks the ability to possess an S-4 Tc for 110 mm pipe of less than  $-5^{\circ}\text{C}$ , as determined by ISO DIS 13477 / ASTM F1589. Welborn thus fails to disclose or suggest a process capable of producing Applicants' recited copolymer. As such, Welborn cannot reasonably be found to anticipate nor obviate Applicants' presently claimed invention. Removal of the rejection is respectfully requested. The claims, as amended, are now in condition for allowance.

Applicants respectfully request that all rejections be withdrawn and solicit a prompt notice of allowability. In the alternative, Applicants invite the Office to telephone the

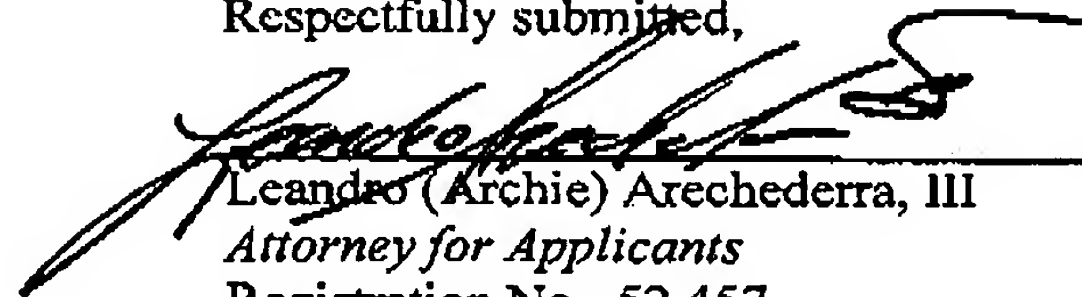
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undersigned attorney if there are any other issues outstanding which have not been presented to the Office's satisfaction.

Respectfully submitted,

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Date

  
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